

What is claimed is:

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- 5 1. An isolated nucleic acid molecule selected from the group consisting of:
- (a) an isolated nucleic acid molecule selected from the group consisting of (i) a nucleic acid molecule comprising a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:10, SEQ ID NO:9, SEQ ID NO:41, SEQ ID NO:11, and SEQ ID NO:13; and (ii) a nucleic acid molecule comprising at least 70 contiguous nucleotides identical in sequence to at least 70 contiguous nucleotides of a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:13, and SEQ ID NO:41;
- 10 (b) an isolated nucleic acid molecule selected from the group consisting of (i) a nucleic acid molecule comprising a nucleic acid sequence selected from the group consisting of SEQ ID NO:14, SEQ ID NO:16, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:20, SEQ ID NO:22, SEQ ID NO:23 and SEQ ID NO:25, and (ii) a nucleic acid molecule comprising at least 70 contiguous nucleotides identical in sequence to at least 70 contiguous nucleotides of a nucleic acid sequence selected from the group consisting of SEQ ID NO:14, SEQ ID NO:16, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:20, SEQ ID NO:22, SEQ ID NO:23 and SEQ ID NO:25;
- 15 (c) an isolated nucleic acid molecule selected from the group consisting of:
- 20 (i) a nucleic acid molecule comprising ((a)) an isolated nucleic acid molecule comprising a nucleic acid sequence selected from the group consisting of

SEQ ID NO:26, SEQ ID NO:29, and a nucleic acid sequence comprising at least 44 contiguous nucleotides identical in sequence to at least 44 contiguous nucleotides of a nucleic acid sequence selected from the group consisting of SEQ ID NO:26 and SEQ ID NO:29; ((b)) a nucleic acid linker of $(XXX)_n$ wherein $n=0$ to 60; and ((c)) an isolated

5 nucleic acid molecule comprising a nucleic acid sequence selected from the group consisting of SEQ ID NO:32, SEQ ID NO:35, and a nucleic acid molecule comprising at least 44 contiguous nucleotides identical in sequence to at least 44 contiguous nucleotides of a nucleic acid sequence selected from the group consisting of SEQ ID NO:32 and SEQ ID NO:35, such that said nucleic acid molecule of (i) encodes a feline IL-12 single chain

10 protein; and

(ii) a nucleic acid molecule comprising a nucleic acid sequence fully complementary to the coding strand of any of said nucleic acid molecules as set forth in (i);

(d) an isolated nucleic acid molecule selected from the group

15 consisting of:

(i) a nucleic acid molecule comprising ((a)) an isolated nucleic acid molecule comprising a nucleic acid sequence selected from the group consisting of SEQ ID NO:52 and SEQ ID NO:58, and a nucleic acid sequence comprising at least 47 contiguous nucleotides identical in sequence to at least 47 contiguous nucleotides of a

20 nucleic acid sequence selected from the group consisting of SEQ ID NO:46 and SEQ ID NO:49; ((b)) a nucleic acid linker of $(XXX)_n$ wherein $n=0$ to 60; and ((c)) an isolated nucleic acid molecule comprising a nucleic acid sequence selected from the group consisting of SEQ ID NO:46, SEQ ID NO:49, and a nucleic acid molecule comprising at

least 47 contiguous nucleotides identical in sequence to at least 47 contiguous nucleotides of a nucleic acid sequence selected from the group consisting of SEQ ID NO:46 and SEQ ID NO:49, such that said nucleic acid molecule of (i) encodes a canine IL-12 single chain protein; and

5 (ii) a nucleic acid molecule comprising a nucleic acid sequence fully complementary to the coding strand of any of said nucleic acid molecules as set forth in (i);

(e) an isolated nucleic acid molecule selected from the group consisting of: (i) a nucleic acid molecule having a nucleic acid sequence that is at least
10 92 percent identical to a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:10, SEQ ID NO:9, SEQ ID NO:41, SEQ ID NO:11, and SEQ ID NO:13; and (ii) a nucleic acid molecule comprising a fragment of a nucleic acid molecule of (i) wherein said fragment is at least 80 nucleotides in length;

15 (f) an isolated nucleic acid molecule selected from the group consisting of (i) a nucleic acid molecule having a nucleic acid sequence that is at least 85 percent identical to a nucleic acid sequence selected from the group consisting of SEQ ID NO:14, SEQ ID NO:16, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:20, SEQ ID NO:22, SEQ ID NO:23 and SEQ ID NO:25, and (ii) a nucleic acid molecule comprising a
20 fragment of a nucleic acid molecule of (i) wherein said fragment is at least 85 nucleotides in length;

(g) an isolated nucleic acid molecule selected from the group consisting of:

- (i) a nucleic acid molecule comprising ((a)) a nucleic acid molecule comprising a nucleic acid sequence that is at least 87 percent identical to a nucleic acid sequence selected from the group consisting of SEQ ID NO:26 and SEQ ID NO:29, or a fragment thereof of at least 55 nucleotides in length; ((b)) a nucleic acid linker of $(XXX)_n$ wherein $n=0$ to 60; and ((c)) a nucleic acid molecule comprising a nucleic acid sequence that is at least 87 percent identical to a nucleic acid sequence selected from the group consisting of SEQ ID NO:32 and SEQ ID NO:35, or a fragment thereof of at least 55 nucleotides in length, such that said nucleic acid molecule (i) encodes a feline IL-12 single chain protein; and
- (ii) a nucleic acid molecule comprising a nucleic acid sequence fully complementary to the coding strand of a nucleic acid molecule as set forth in (i); and
- (h) an isolated nucleic acid molecule selected from the group consisting of:
- (i) a nucleic acid molecule comprising ((a)) an isolated nucleic acid molecule comprising a nucleic acid sequence selected from the group consisting of SEQ ID NO:52, SEQ ID NO:58, and a nucleic acid sequence comprising at least 55 contiguous nucleotides identical in sequence to at least 55 contiguous nucleotides of a nucleic acid sequence selected from the group consisting of SEQ ID NO:52 and SEQ ID NO:58; ((b)) a nucleic acid linker of $(XXX)_n$ wherein $n=0$ to 60; and ((c)) an isolated nucleic acid molecule comprising a nucleic acid sequence selected from the group consisting of SEQ ID NO:46, SEQ ID NO:49, and a nucleic acid molecule comprising at least 55 contiguous nucleotides identical in sequence to at least 55 contiguous nucleotides of a nucleic acid sequence selected from the group consisting of SEQ ID NO:46 and SEQ

ID NO:49, such that said nucleic acid molecule of (i) encodes a canine IL-12 single chain protein; and

(ii) a nucleic acid molecule comprising a nucleic acid sequence fully complementary to the coding strand of any of said nucleic acid molecules as set forth in (i).

(j) a nucleic acid molecule having a nucleic acid sequence encoding an IL-18 protein selected from the group consisting of:

(i) a protein selected from the group consisting of ((a)) a protein having an amino acid sequence that is at least 92 percent identical to an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:5, SEQ ID NO:8 and SEQ ID NO:12, and ((b)) a protein comprising a fragment of a protein of ((a)), wherein said fragment is at least 30 amino acids in length; and

(ii) a protein comprising at least 25 contiguous amino acids identical in sequence to at least 25 contiguous amino acids of an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:5, SEQ ID NO:8 and SEQ ID NO:12;

(k) a nucleic acid molecule having a nucleic acid sequence encoding a caspase-1 protein selected from the group consisting of

(i) a protein selected from the group consisting of ((a)) a protein having an amino acid sequence that is at least 85 percent identical to an amino acid sequence selected from the group consisting of SEQ ID NO:15, SEQ ID NO:18, SEQ ID NO:21, and SEQ ID NO:24, and ((b)) a protein comprising a fragment of a protein of ((a)), wherein said fragment is at least 30 amino acids in length; and

(ii) a protein comprising at least 25 contiguous amino acids identical in sequence to at least 25 contiguous amino acids selected from the group consisting of SEQ ID NO:15, SEQ ID NO:18, SEQ ID NO:21, and SEQ ID NO:24;

(l) a nucleic acid molecule having a nucleic acid sequence encoding
5 an IL-12 single chain protein comprising an IL-12 p40 subunit domain linked to a IL-12 p35 subunit domain,

wherein said p40 subunit domain is selected from the group consisting of
(i) a p40 subunit protein having an amino acid sequence that is at least 84 percent
identical to an amino acid sequence selected from the group consisting of SEQ ID NO:27
10 and SEQ ID NO:30, (ii) a p40 subunit protein comprising a fragment of a protein of (i),
wherein said fragment is at least 30 amino acids in length, and (iii) a p40 subunit protein
comprising at least 23 contiguous amino acids identical in sequence to at least 23
contiguous amino acids of an amino acid sequence selected from the group consisting of
SEQ ID NO:27 and SEQ ID NO:30 and

15 wherein said p35 subunit domain is selected from the group consisting of
(i) a p35 subunit protein having an amino acid sequence that is at least 84 percent
identical to an amino acid sequence selected from the group consisting of SEQ ID NO:33
and SEQ ID NO:36, (ii) a p35 subunit protein comprising a fragment of a protein of (i),
wherein said fragment is at least 30 amino acids in length, and (iii) a p35 subunit protein
20 comprising at least 23 contiguous amino acids identical in sequence to at least 23
contiguous amino acids of an amino acid sequence selected from the group consisting of
SEQ ID NO:33 and SEQ ID NO:36;

(m) a nucleic acid molecule having a nucleic acid sequence encoding an IL-12 single chain protein comprising an IL-12 p40 subunit domain linked to a IL-12 p35 subunit domain,

wherein said p40 subunit domain is selected from the group consisting of

- 5 (i) a p40 subunit protein having an amino acid sequence that is at least 84 percent identical to an amino acid sequence selected from the group consisting of SEQ ID NO:53 and SEQ ID NO:59, (ii) a p40 subunit protein comprising a fragment of a protein of (i), wherein said fragment is at least 40 amino acids in length, and (iii) a p40 subunit protein comprising at least 31 contiguous amino acids identical in sequence to at least 31
10 contiguous amino acids of an amino acid sequence selected from the group consisting of SEQ ID NO:53 and SEQ ID NO:59; and

wherein said p35 subunit domain is selected from the group consisting of

- (i) a p35 subunit protein having an amino acid sequence that is at least 84 percent identical to an amino acid sequence selected from the group consisting of SEQ ID NO:47
15 and SEQ ID NO:50, (ii) a p35 subunit protein comprising a fragment of a protein of (i), wherein said fragment is at least 40 amino acids in length, and (iii) a p35 subunit protein comprising at least 31 contiguous amino acids identical in sequence to at least 31 contiguous amino acids of an amino acid sequence selected from the group consisting of SEQ ID NO:47 and SEQ ID NO:50; and

- 20 (n) a nucleic acid molecule comprising a nucleic acid sequence fully complementary to the coding strand of any of said nucleic acid molecules as set forth in (j), (k), (l) or (m).

2. The nucleic acid molecule of Claim 1,
wherein said nucleic acid molecule as set forth in (a), (e) or (j) comprises a
nucleic acid sequence that encodes a feline IL-18 protein;

wherein said nucleic acid molecule as set forth in (b), (f) or (k) comprises a
5 nucleic acid sequence that encodes a feline caspase-1 protein.

wherein said nucleic acid molecule as set forth in (c), (g) or (l) comprises a
nucleic acid sequence that encodes a feline IL-12 single chain protein; and

wherein said nucleic acid molecule as set forth in (d), (h) or (m) comprises a
nucleic acid sequence that encodes a canine IL-12 single chain protein.

10 3. The nucleic acid molecule of Claim 1,
wherein said nucleic acid molecule selected from the group consisting of (a), (e)
and (j) encodes a protein having a function selected from the group consisting of
(i) eliciting an immune response against an IL-18 protein having an amino acid sequence
selected from the group consisting of SEQ ID NO:2, SEQ ID NO:5, SEQ ID NO:8 and
15 SEQ ID NO:12, (ii) selectively binding to an antibody raised against an IL-18 protein
having an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ
ID NO:5, SEQ ID NO:8, and SEQ ID NO:12, and (iii) exhibiting IL-18 activity;

wherein said nucleic acid molecule selected from the group consisting of (b), (f)
and (k) encodes a protein having a function selected from the group consisting of
20 (i) eliciting an immune response against a caspase-1 protein having an amino acid
sequence selected from the group consisting of SEQ ID NO:15, SEQ ID NO:18, SEQ ID
NO:21, and SEQ ID NO:24, (ii) selectively binding to an antibody raised against caspase-
1 protein having an amino acid sequence selected from the group consisting of SEQ ID

NO:15, SEQ ID NO:18, SEQ ID NO:21, and SEQ ID NO:24, and (iii) exhibiting caspase-1 activity; and

wherein said nucleic acid molecule selected from the group consisting of (c), (d), (g), (h), (l) and (m) encodes a protein having a function selected from the group consisting of (i) eliciting an immune response against an IL-12 protein having an amino acid sequence selected from the group consisting of SEQ ID NO:39, SEQ ID NO:44, SEQ ID NO:62, and SEQ ID NO:67, (ii) selectively binding to an antibody raised against an IL-12 protein having an amino acid sequence selected from the group consisting of SEQ ID NO:27, SEQ ID NO:30, SEQ ID NO:33, SEQ ID NO:36, SEQ ID NO:47, SEQ ID NO:50, SEQ ID NO:53, and SEQ ID NO:59, SEQ ID NO:102, SEQ ID NO:105, SEQ ID NO:108, SEQ ID NO:39, SEQ ID NO:40, SEQ ID NO:62, and SEQ ID NO:67, and (iii) exhibiting IL-12 activity.

4. The nucleic acid molecule of Claim 1, wherein said nucleic acid molecule comprises a nucleic acid molecule selected from the group consisting of nFeIL-18-N₅₁₄, nFeIL-18-C₅₀₂, nFeIL-18₆₀₇, nFeIL-18₅₇₆, nFeIL-18₄₇₁, nFeCasp-1₁₂₃₃, nFeCasp-1-N₅₂₆, nFeCasp-1-C₅₀₀, nFeCasp-1₁₂₃₀, nFeIL-12₁₅₉₉, nFeIL-12₁₅₃₃, nCaIL-12₁₅₉₉, and nCaIL-12₁₅₃₃.

5. The nucleic acid molecule of Claim 1, wherein said nucleic acid molecule is selected from the group consisting of:

(a) a nucleic acid molecule comprising a nucleic acid sequence that encodes a protein having an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:5, SEQ ID NO:8, SEQ ID NO:12, SEQ ID NO:15, SEQ ID

NO:18, SEQ ID NO:21, SEQ ID NO:24, SEQ ID NO:39, SEQ ID NO:44, SEQ ID NO:62, and SEQ ID NO:67; and

(b) a nucleic acid molecule comprising an allelic variant of a nucleic acid molecule encoding a protein having any of said amino acid sequences of (a).

5 6. The nucleic acid molecule of Claim 1, wherein said nucleic acid molecule is selected from the group consisting of

(a) a nucleic acid molecule comprising a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:10, SEQ ID NO:9, SEQ ID NO:41, SEQ ID NO:11, 10 SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:16, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:20, SEQ ID NO:22, SEQ ID NO:23, SEQ ID NO:25, SEQ ID NO:38, SEQ ID NO:40, SEQ ID NO:43, SEQ ID NO:45, SEQ ID NO:61, SEQ ID NO:63, SEQ ID NO:66, and SEQ ID NO:68; and

(b) a nucleic acid molecule comprising an allelic variant of a nucleic acid molecule comprising any of said nucleic acid sequences of (a). 15

7. A nucleic acid molecule selected from the group consisting of: the nucleic acid molecule of Claim 1(c)(i) comprising, in the following order, ((a)), ((b)), and ((c)), the nucleic acid molecule of Claim 1(d)(i) comprising, in the following order, ((a)), ((b)), and ((c)), the nucleic acid molecule of Claim 1(g)(i) comprising, in the following order, 20 ((a)), ((b)), and ((c)), and the nucleic acid molecule of Claim 1(h)(i) comprising, in the following order, ((a)), ((b)), and ((c)).

8. The nucleic acid molecule of Claim 7, wherein said nucleic acid sequence encoding said linker comprises SEQ ID NO:83.

9. The nucleic acid molecule of Claim 7, wherein said single chain protein comprises a p40 subunit at the N-terminus and a p35 subunit at the C-terminus.
10. A recombinant molecule comprising a nucleic acid molecule as set forth in Claim 1.
- 5 11. A recombinant virus comprising a nucleic acid molecule as set forth in Claim 1.
12. A recombinant cell comprising a nucleic acid molecule as set forth in Claim 1.
- 10 ^{SUB} 13. The nucleic acid molecule of Claim 1, wherein said nucleic acid molecule ~~AD~~ selected from the group consisting of group (l) and group (m) further comprises a nucleic acid molecule encoding a linker.
14. A composition comprising an excipient and an isolated nucleic acid molecule of Claim 1.
- 15 15. A method to regulate an immune response comprising administering to an animal a composition of Claim 14.
16. A method to produce a protein comprising culturing a recombinant cell as set forth in Claim 12.

17. An isolated protein selected from the group consisting of:
- (a) an isolated IL-18 protein selected from the group consisting of:
- (i) an isolated protein of at least 25 amino acids in length,
wherein said protein has an at least 25 contiguous amino acid region identical in sequence
5 to a 25 contiguous amino acid region selected from the group consisting of SEQ ID
NO:2, SEQ ID NO:5, SEQ ID NO:8 and SEQ ID NO:12; and
- (ii) an isolated protein having an amino acid sequence that is at
least 92 percent identical to an amino acid sequence selected from the group consisting of
SEQ ID NO:2, SEQ ID NO:5, SEQ ID NO:8 and SEQ ID NO:12 and a fragment thereof
10 of at least 30 nucleotides;
- wherein said isolated protein has a function selected from the group
consisting of (i) eliciting an immune response against an IL-18 protein having an amino
acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:5, SEQ
ID NO:8 and SEQ ID NO:12, (ii) selectively binding to an antibody raised against an
15 IL-18 protein having an amino acid sequence selected from the group consisting of SEQ
ID NO:2, SEQ ID NO:5, SEQ ID NO:8, and SEQ ID NO:12, and (iii) exhibiting IL-18
activity;
- (b) an isolated caspase-1 protein selected from the group consisting of:
- (i) an isolated protein of at least about 25 amino acids in
20 length, wherein said protein has an at least 25 contiguous amino acid region identical in
sequence to a 25 contiguous amino acid region selected from the group consisting of SEQ
ID NO:15, SEQ ID NO:18, SEQ ID NO:21, and SEQ ID NO:24; and

(ii) an isolated protein having an amino acid sequence that is at least 85 percent identical to an amino acid sequence selected from the group consisting of SEQ ID NO:15, SEQ ID NO:18, SEQ ID NO:21, and SEQ ID NO:24 and has a nucleic acid fragment thereof of at least 30 nucleotides;

5 wherein said isolated protein has a function selected from the group consisting of (i) eliciting an immune response against a caspase-1 protein having an amino acid sequence selected from the group consisting of SEQ ID NO:15, SEQ ID NO:18, SEQ ID NO:21, and SEQ ID NO:24, (ii) ii) selectively binding to an antibody raised against caspase-1 protein having an amino acid sequence selected from the group
10 consisting of SEQ ID NO:15, SEQ ID NO:18, SEQ ID NO:21, and SEQ ID NO:24, and (iii) exhibiting caspase-1 activity;

(c) an isolated IL-12 single chain protein comprising an IL-12 p40 subunit domain linked to an IL-12 p35 subunit domain,

wherein said p40 subunit domain is selected from the group consisting of
15 (i) a p40 subunit protein having an amino acid sequence that is at least 84 percent identical to an amino acid sequence selected from the group consisting of SEQ ID NO:27 and SEQ ID NO:30, (ii) a p40 subunit protein comprising a fragment of a protein of (i), wherein said fragment is at least 30 amino acids in length, and (iii) a p40 subunit protein comprising at least 23 contiguous amino acids identical in sequence to at least 23
20 contiguous amino acids of an amino acid sequence selected from the group consisting of SEQ ID NO:27 and SEQ ID NO:30 and

wherein said p35 subunit domain is selected from the group consisting of
(i) a p35 subunit protein having an amino acid sequence that is at least 84 percent

identical to an amino acid sequence selected from the group consisting of SEQ ID NO:33 and SEQ ID NO:36, (ii) a p35 subunit protein comprising a fragment of a protein of (i), wherein said fragment is at least 30 amino acids in length, and (iii) a p35 subunit protein comprising at least 23 contiguous amino acids identical in sequence to at least 23

5 contiguous amino acids of an amino acid sequence selected from the group consisting of SEQ ID NO:33 and SEQ ID NO:36;

wherein said isolated protein has a function selected from the group consisting of (i) eliciting an immune response against an IL-12 protein having an amino acid sequence selected from the group consisting of SEQ ID NO:39, SEQ ID NO:44, 10 SEQ ID NO:62, and SEQ ID NO:67, (ii) selectively binding to an antibody raised against an IL-12 protein having an amino acid sequence selected from the group consisting of SEQ ID NO:27, SEQ ID NO:30, SEQ ID NO:33, SEQ ID NO:36, SEQ ID NO:47, SEQ ID NO:50, SEQ ID NO:53, and SEQ ID NO:59, SEQ ID NO:102, SEQ ID NO:105, SEQ ID NO:108, SEQ ID NO:39, SEQ ID NO:40, SEQ ID NO:62, and/or SEQ ID NO:67, and 15 (iii) exhibiting IL-12 activity; and

(d) an isolated IL-12 single chain protein comprising an IL-12 p40 subunit domain linked to an IL-12 p35 subunit domain,

wherein said p40 subunit domain is selected from the group consisting of (i) a p40 subunit protein having an amino acid sequence that is at least 84 percent 20 identical to an amino acid sequence selected from the group consisting of SEQ ID NO:53 and SEQ ID NO:59, (ii) a p40 subunit protein comprising a fragment of a protein of (i), wherein said fragment is at least 40 amino acids in length, and (iii) a p40 subunit protein comprising at least 31 contiguous amino acids identical in sequence to at least 31

contiguous amino acids of an amino acid sequence selected from the group consisting of SEQ ID NO:53 and SEQ ID NO:59;

wherein said p35 subunit domain is selected from the group consisting of

(i) a p35 subunit protein having an amino acid sequence that is at least 84 percent

5 identical to an amino acid sequence selected from the group consisting of SEQ ID NO:47 and SEQ ID NO:50, (ii) a p35 subunit protein comprising a fragment of a protein of (i), wherein said fragment is at least 40 amino acids in length, and (iii) a p35 subunit protein comprising at least 31 contiguous amino acids identical in sequence to at least 31

contiguous amino acids of an amino acid sequence selected from the group consisting of

10 SEQ ID NO:47 and SEQ ID NO:50; and

wherein said isolated protein has a function selected from the group consisting of

(i) eliciting an immune response against an IL-12 protein having an amino acid sequence selected from the group consisting of SEQ ID NO:39, SEQ ID NO:44, SEQ ID NO:62, and SEQ ID NO:67, (ii) selectively binding to an antibody raised against an IL-12 protein

15 having an amino acid sequence selected from the group consisting of SEQ ID NO:27, SEQ ID NO:30, SEQ ID NO:33, SEQ ID NO:36, SEQ ID NO:47, SEQ ID NO:50, SEQ ID NO:53, and SEQ ID NO:59, SEQ ID NO:102, SEQ ID NO:105, SEQ ID NO:108, SEQ ID NO:39, SEQ ID NO:40, SEQ ID NO:62, and/or SEQ ID NO:67, and

(iii) exhibiting IL-12 activity.

20 18. An isolated antibody that selectively binds to a protein as set forth in Claim 17.

19. A composition comprising an excipient and a compound selected from the group consisting of:

- (a) a protein as set forth in Claim 17;
- (b) a mimotope of any of said proteins of Claim 19(a);
- (c) a multimeric form of any of said proteins of Claim 19(a);
- (d) an antibody that selectively binds to any of said proteins of
- 5 Claim 19(a); and
- (e) an inhibitor identified by its ability to inhibit the activity of any of
- said proteins of 19(a).

20. A method to produce a protein, said method comprising culturing a recombinant cell capable of expressing a protein as set forth in Claim 17.

21. A method to identify a compound capable of regulating an immune response in an animal, said method selected from the group consisting of :

(a) contacting an isolated feline IL-18 protein with a putative inhibitory compound under conditions in which, in the absence of said compound, said protein has T cell stimulating activity; and determining if said putative inhibitory compound inhibits said activity;

(b) contacting an isolated feline caspase-1 protein with a putative inhibitory compound under conditions in which, in the absence of said compound, said protein cleaves precursor form of IL-18 resulting in a biologically active IL-18; and determining if said putative inhibitory compound inhibits said activity; and

(c) contacting an isolated IL-12 single chain protein with a putative inhibitory compound under conditions in which, in the absence of said compound, said protein has T cell proliferation stimulating activity; and determining if said putative inhibitory compound inhibits said activity.

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